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Lipscomb et al.

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(45) Date of Patent: Mar. 28, 2006

(54) **SYSTEM AND METHOD FOR DISTRIBUTING MEDIA ASSETS TO USER DEVICES VIA A PORTAL SYNCHRONIZED BY SAID USER DEVICES**

(76) Inventors: **Kenneth O. Lipscomb**, 3449 Sheridan Chase, Marietta, GA (US) 30067; **John B. Petritis**, 3405 Sweetwater Rd., Apt. 617, Lawrenceville, GA (US) 30044; **Richard D. Robison**, 2385 Tanglewood Rd., Decatur, GA (US) 30033-2006; **Kelly P. Morrison**, 4109 Paces Station Close, Atlanta, GA (US) 30339-0037; **Michael D. Hirsch**, 2299 Tristan Cir., Atlanta, GA (US) 30345; **Eric Neal Muntz**, 3449 Sheridan Chase, Marietta, GA (US) 30067; **John Paul Whitehead, III**, 896 Los Angeles Ave., Atlanta, GA (US) 30306

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(21) Appl. No.: **09/679,688**

(22) Filed: **Oct. 5, 2000**

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(51) **Int. Cl.**
G06F 15/173 (2006.01)

(52) **U.S. Cl.** **709/226**; 709/217; 709/218; 709/219

(58) **Field of Classification Search** 709/217–219, 709/225–226, 229, 231–232, 311, 201–203; 713/2; 705/1
See application file for complete search history.

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Primary Examiner—Beatriz Prieto
(74) *Attorney, Agent, or Firm*—Gregory Scott Smith; Smith Frohwein Tempel Greenlee Blaha LLC

(57) **ABSTRACT**

A system and method for distributing digital media assets to a plurality of users. A portal is provided comprising at least one server computer. The portal executes a media library database server application that manages access a master library of media assets that can be accessed by users via one or more communication networks. A plurality of media player devices communicate with the portal to access media assets for use. Each media player device may comprise a processor that executes a database client application that manages media assets licensed for use by a user.

10 Claims, 11 Drawing Sheets

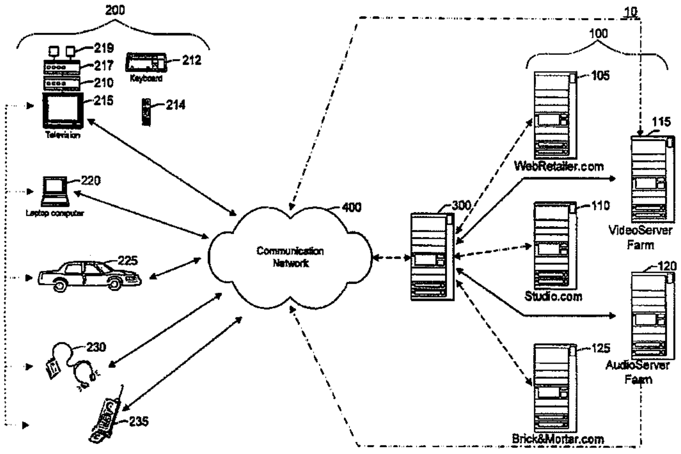


EXHIBIT
A
tabbies®

Dockets.Justia.com

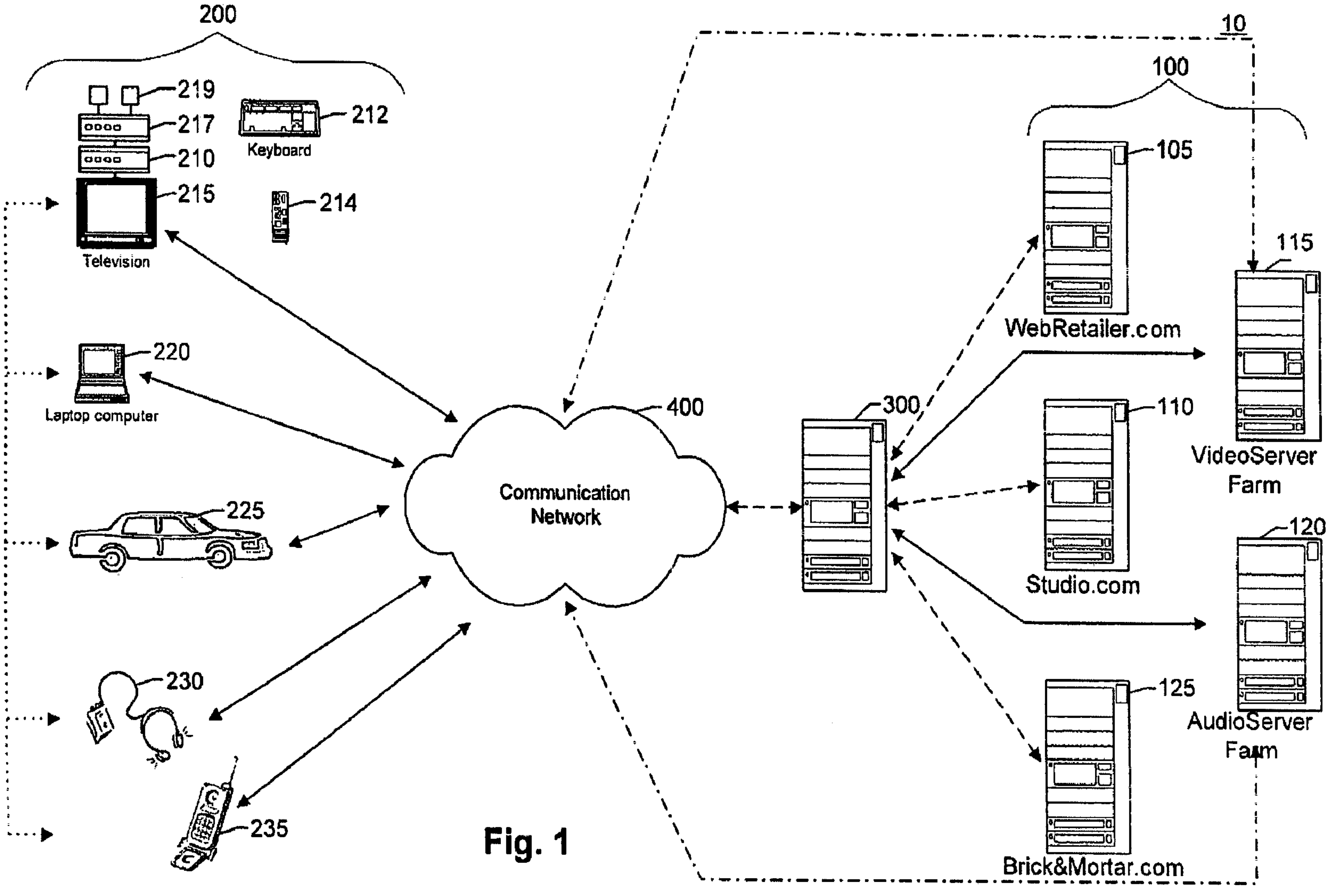
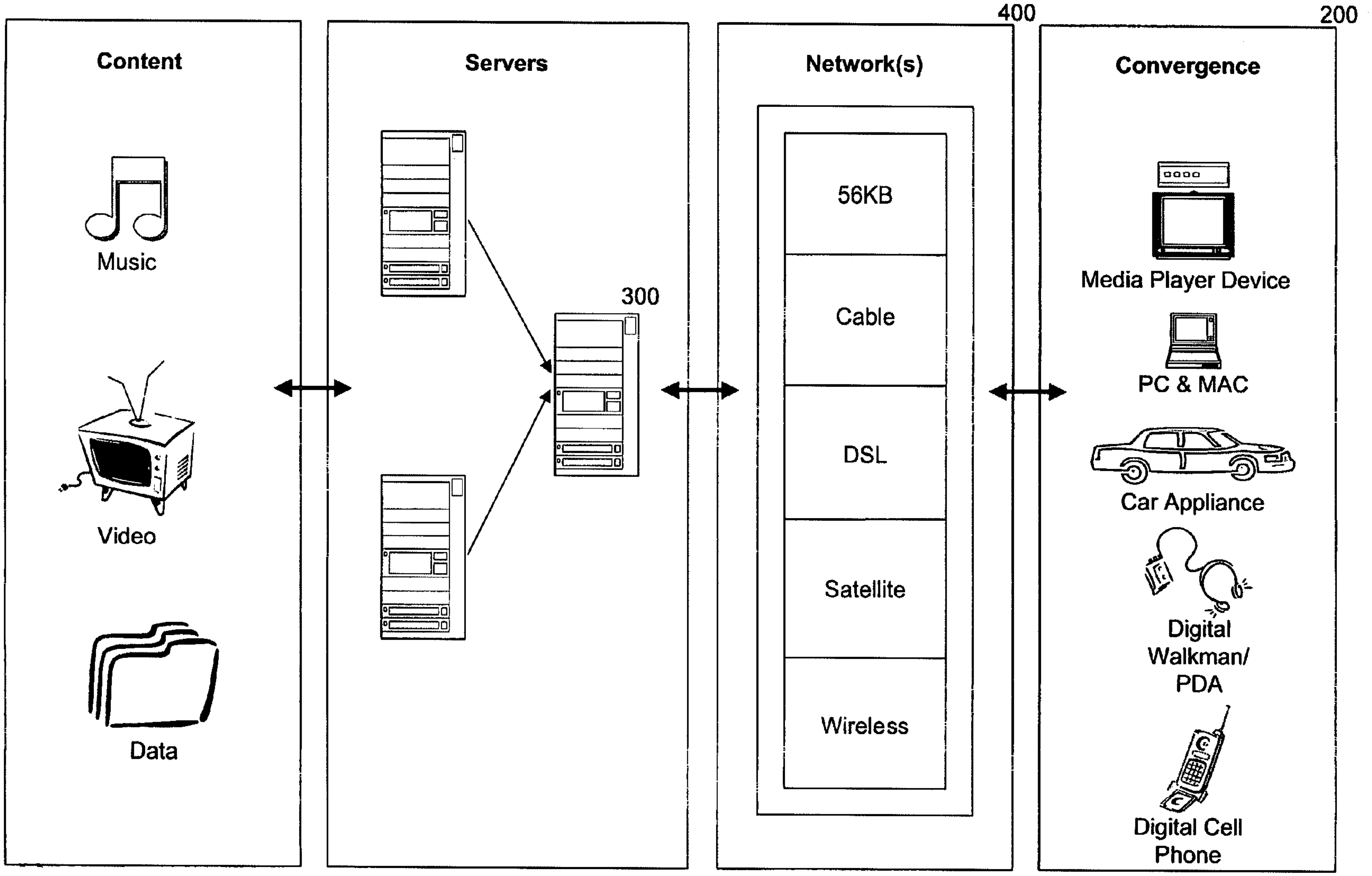

200
219
217
210
215
Television
212
Keyboard
214
220
Laptop computer
225
230
235
10
100
105
WebRetailer.com
115
VideoServer
Farm
110
Studio.com
120
AudioServer
Farm
125
Brick&Mortar.com
300
400
Communication
Network

Fig. 1



400
200
Content
Music
Video
Data
Servers
300
Network(s)
56KB
Cable
DSL
Satellite
Wireless
Convergence
Media Player Device
PC & MAC
Car Appliance
Digital
Walkman/
PDA
Digital Cell
Phone

Fig. 2

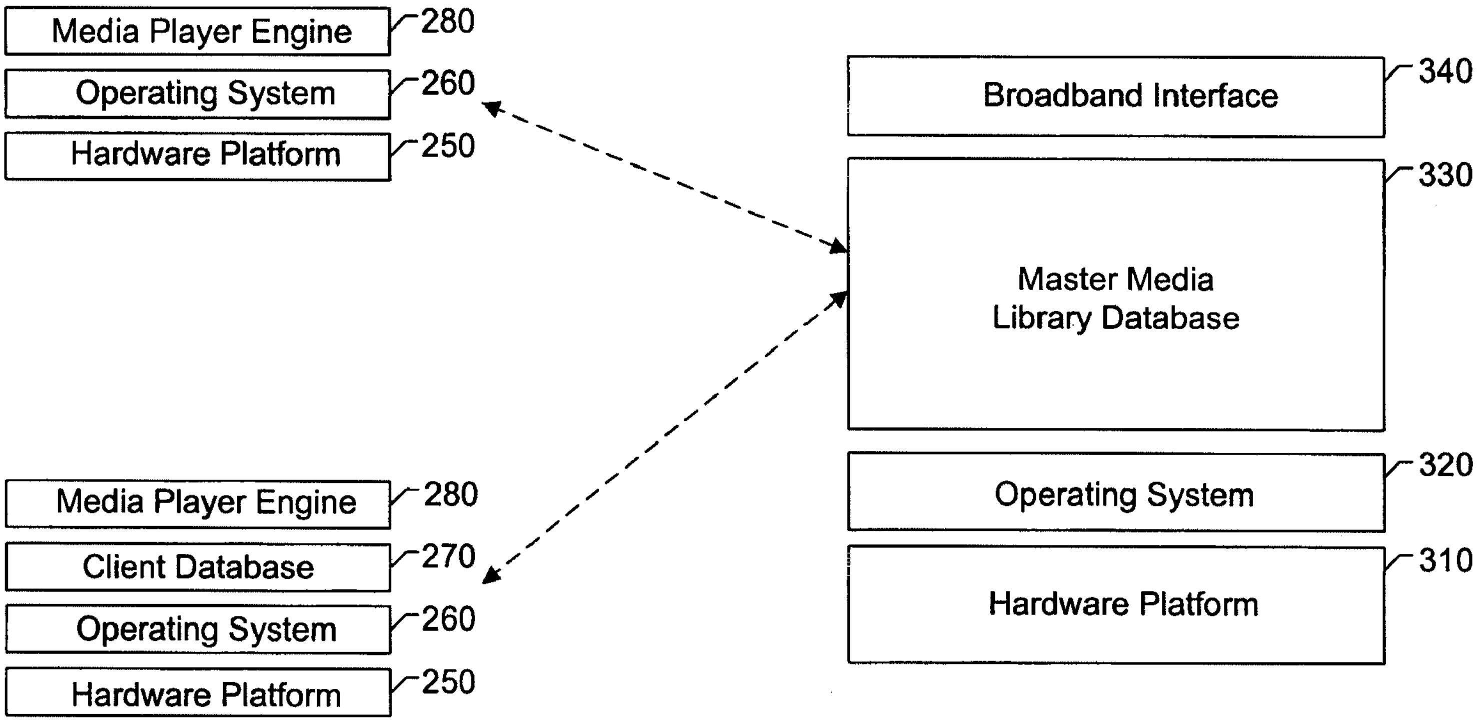

Media Player Engine
280
Operating System
260
Hardware Platform
250
Broadband Interface
340
Master Media
Library Database
330
Operating System
320
Hardware Platform
310
Media Player Engine
280
Client Database
270
Operating System
260
Hardware Platform
250

Fig. 3

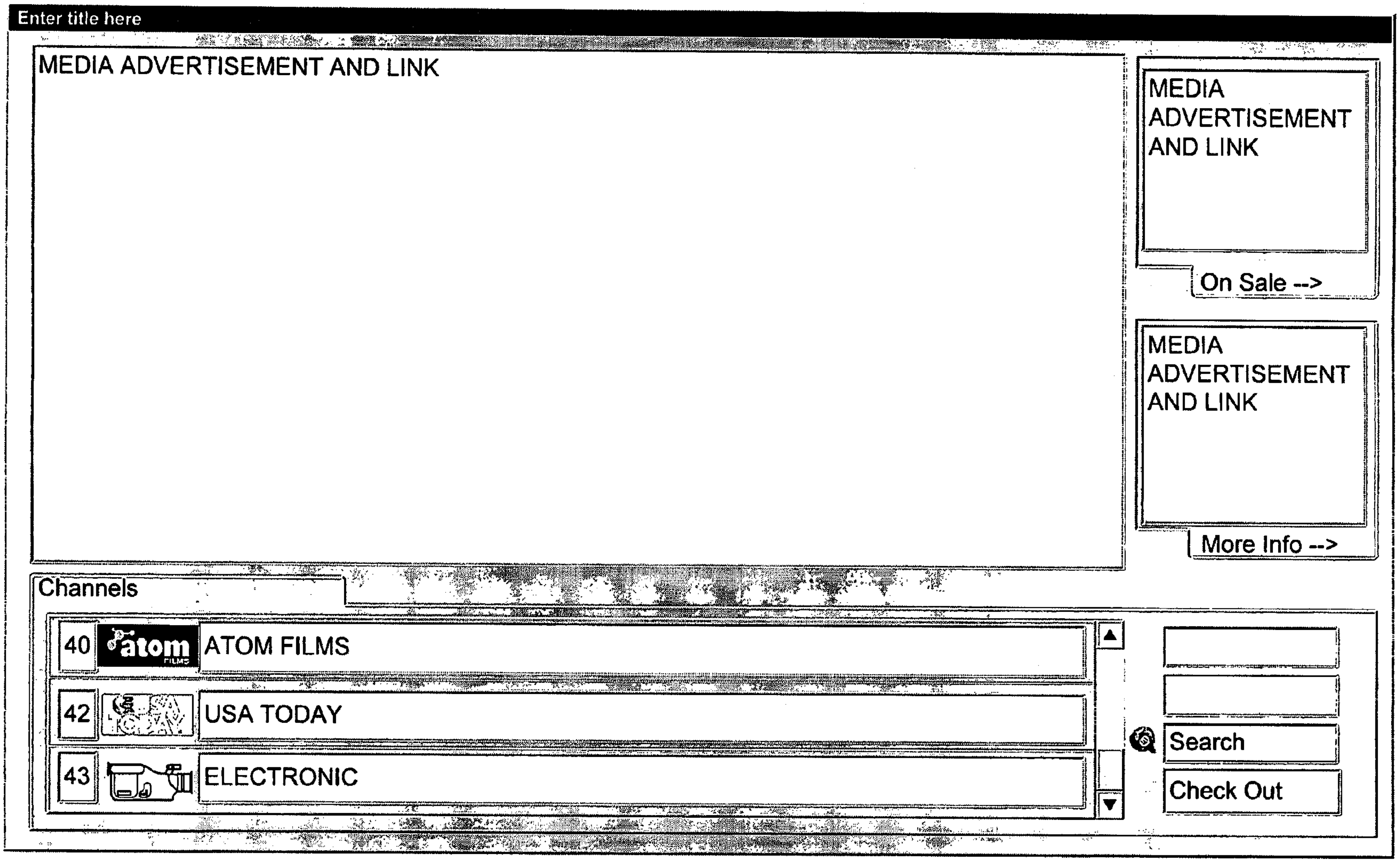

Enter title here
MEDIA ADVERTISEMENT AND LINK
MEDIA ADVERTISEMENT AND LINK
On Sale -->
MEDIA ADVERTISEMENT AND LINK
More Info -->
Channels
40
atom
ATOM FILMS
42
USA TODAY
43
ELECTRONIC
Search
Check Out

Fig. 4

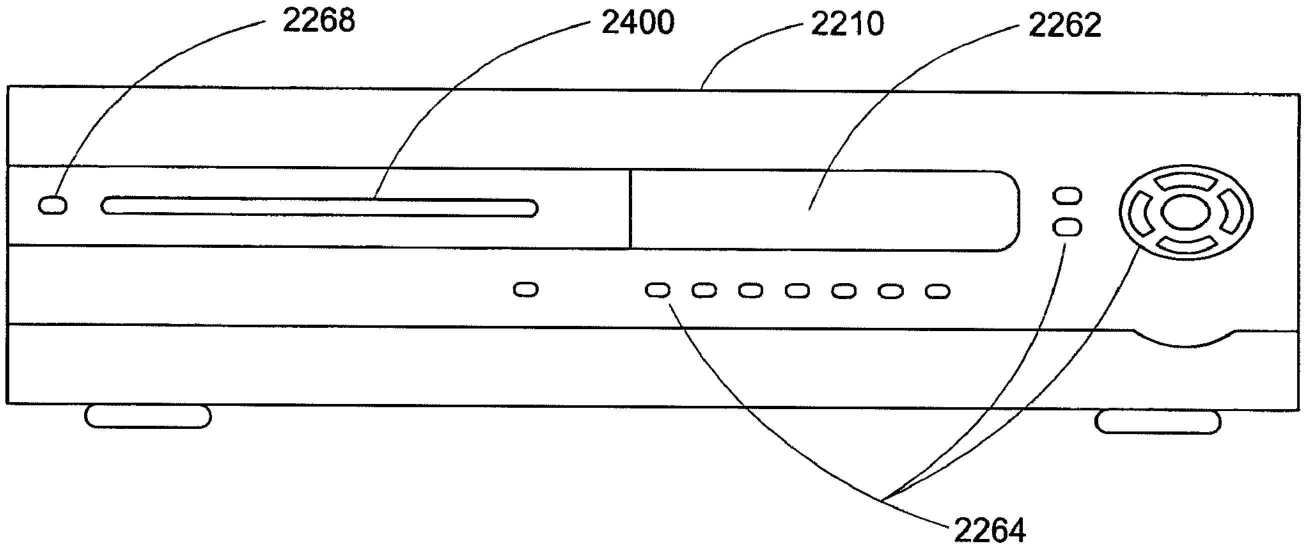

2268
2400
2210
2262
2264

Fig. 5

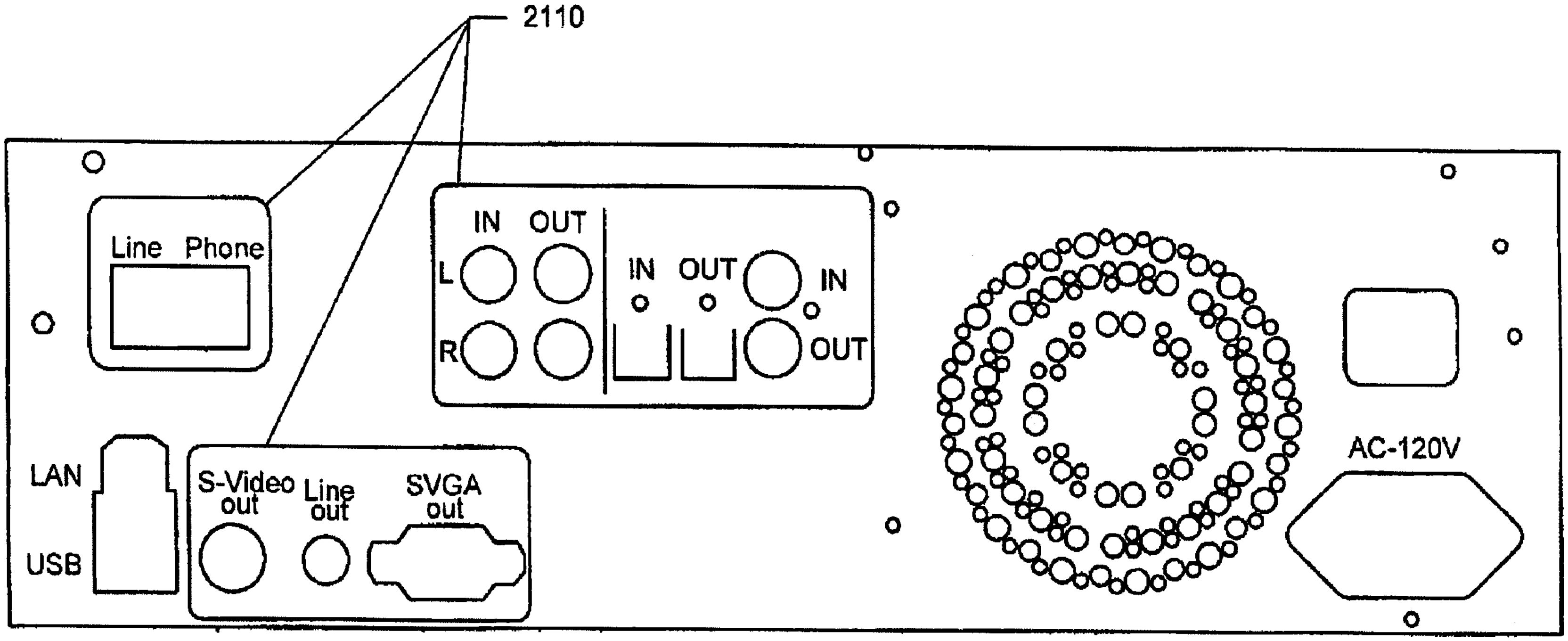

2110
Line Phone
IN OUT
L
R
IN OUT
IN
OUT
LAN
USB
S-Video out
Line out
SVGA out
AC-120V

Fig. 6

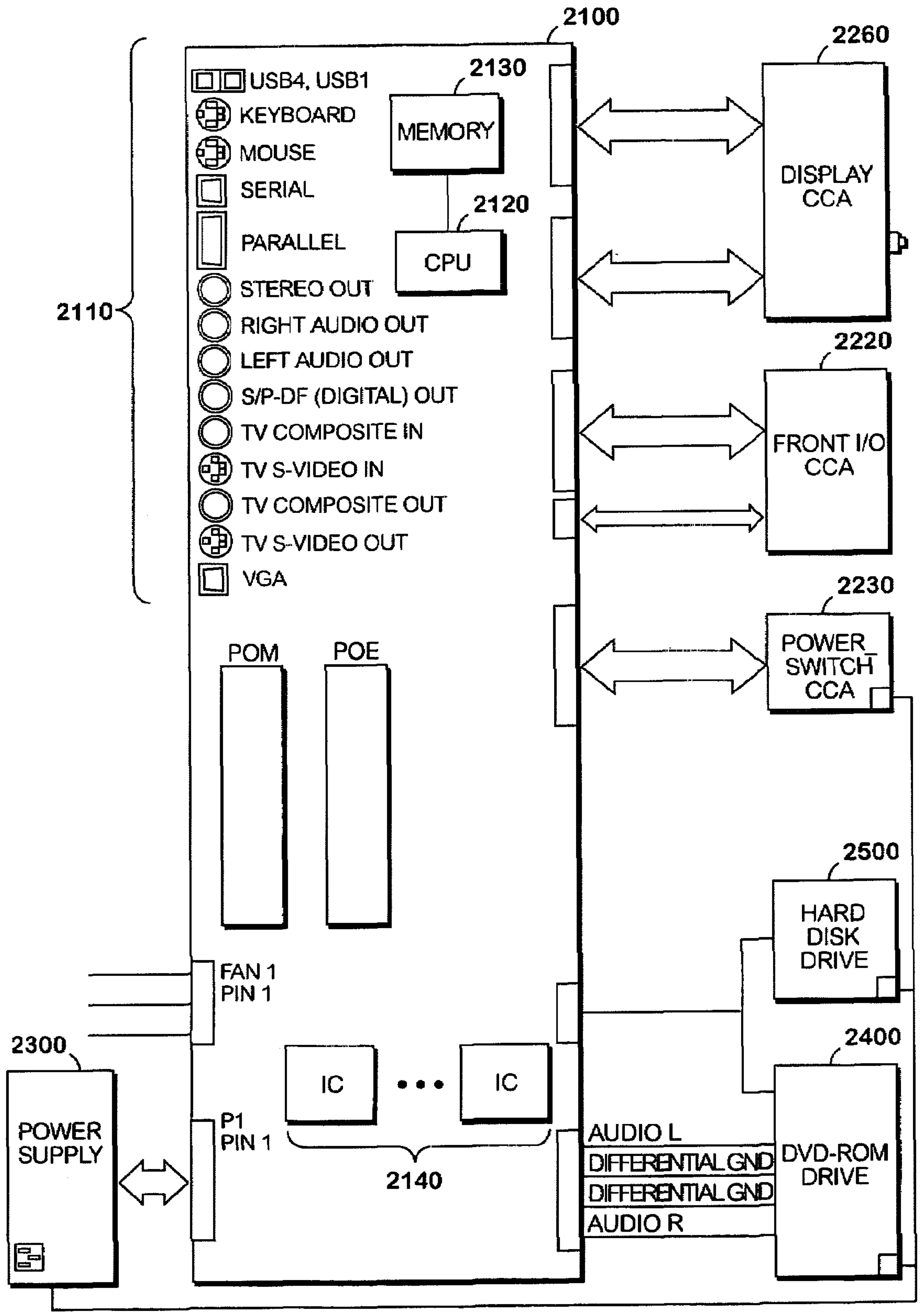

2100
2260
2130
USB4, USB1
KEYBOARD
MOUSE
SERIAL
PARALLEL
STEREO OUT
RIGHT AUDIO OUT
LEFT AUDIO OUT
S/P-DF (DIGITAL) OUT
TV COMPOSITE IN
TV S-VIDEO IN
TV COMPOSITE OUT
TV S-VIDEO OUT
VGA
MEMORY
2120
CPU
2110
DISPLAY CCA
2220
FRONT I/O CCA
2230
POWER_ SWITCH CCA
POM
POE
2500
HARD DISK DRIVE
FAN 1 PIN 1
2300
2400
IC
IC
P1 PIN 1
2140
POWER SUPPLY
AUDIO L
DIFFERENTIAL GND
DIFFERENTIAL GND
AUDIO R
DVD-ROM DRIVE

FIG.7

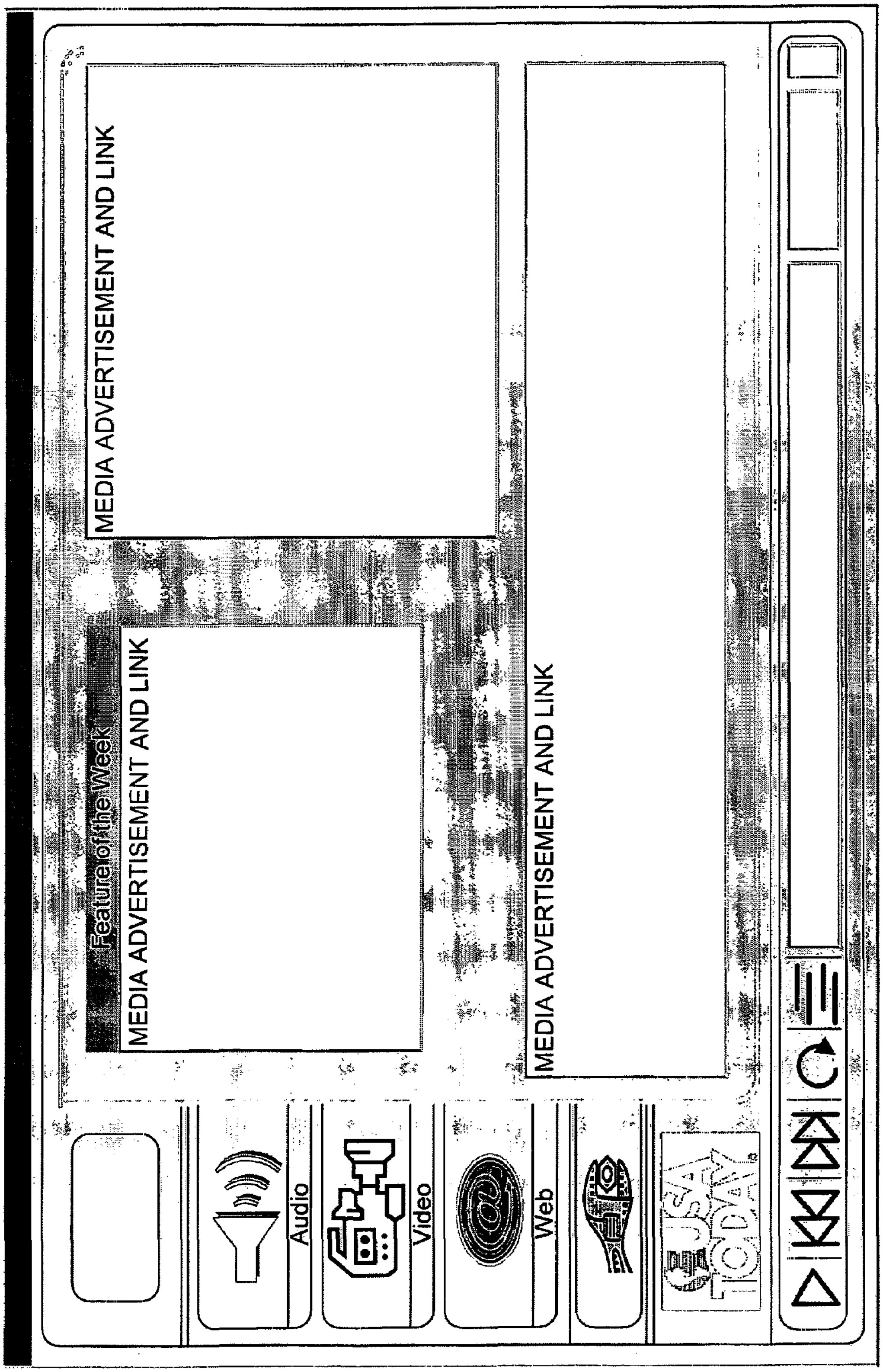

MEDIA ADVERTISEMENT AND LINK
Feature of the Week
MEDIA ADVERTISEMENT AND LINK
MEDIA ADVERTISEMENT AND LINK
Audio
Video
Web
USA TODAY

Fig. 8

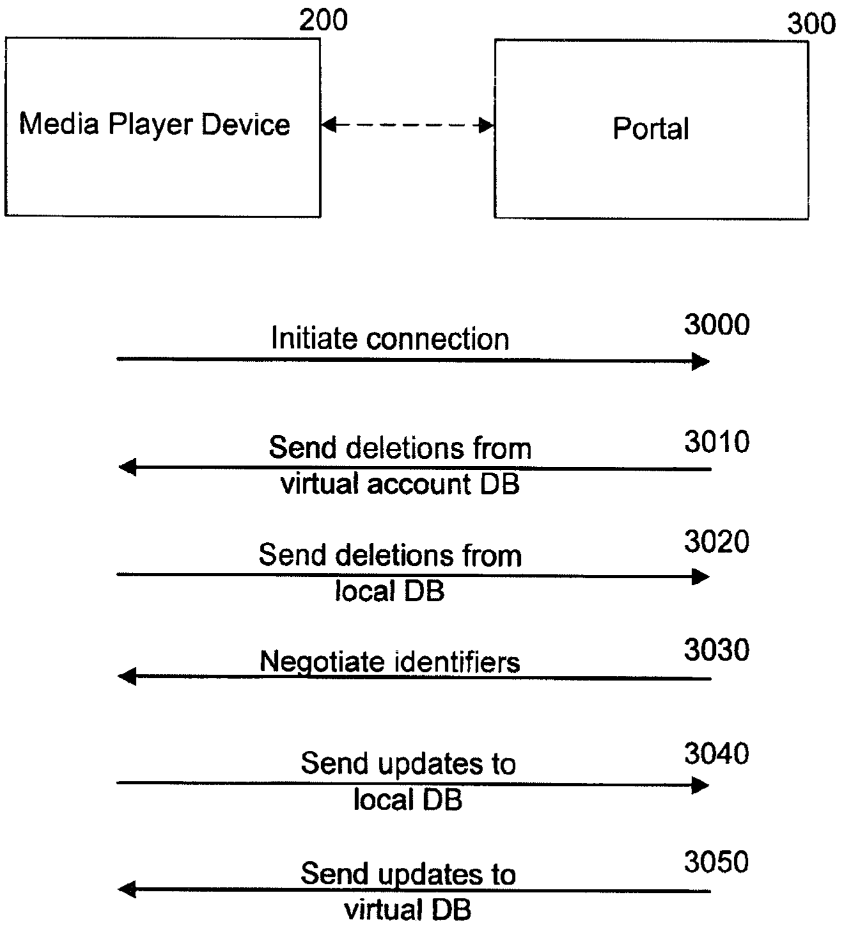

200
Media Player Device
300
Portal
Initiate connection
3000
Send deletions from virtual account DB
3010
Send deletions from local DB
3020
Negotiate identifiers
3030
Send updates to local DB
3040
Send updates to virtual DB
3050

Fig. 9

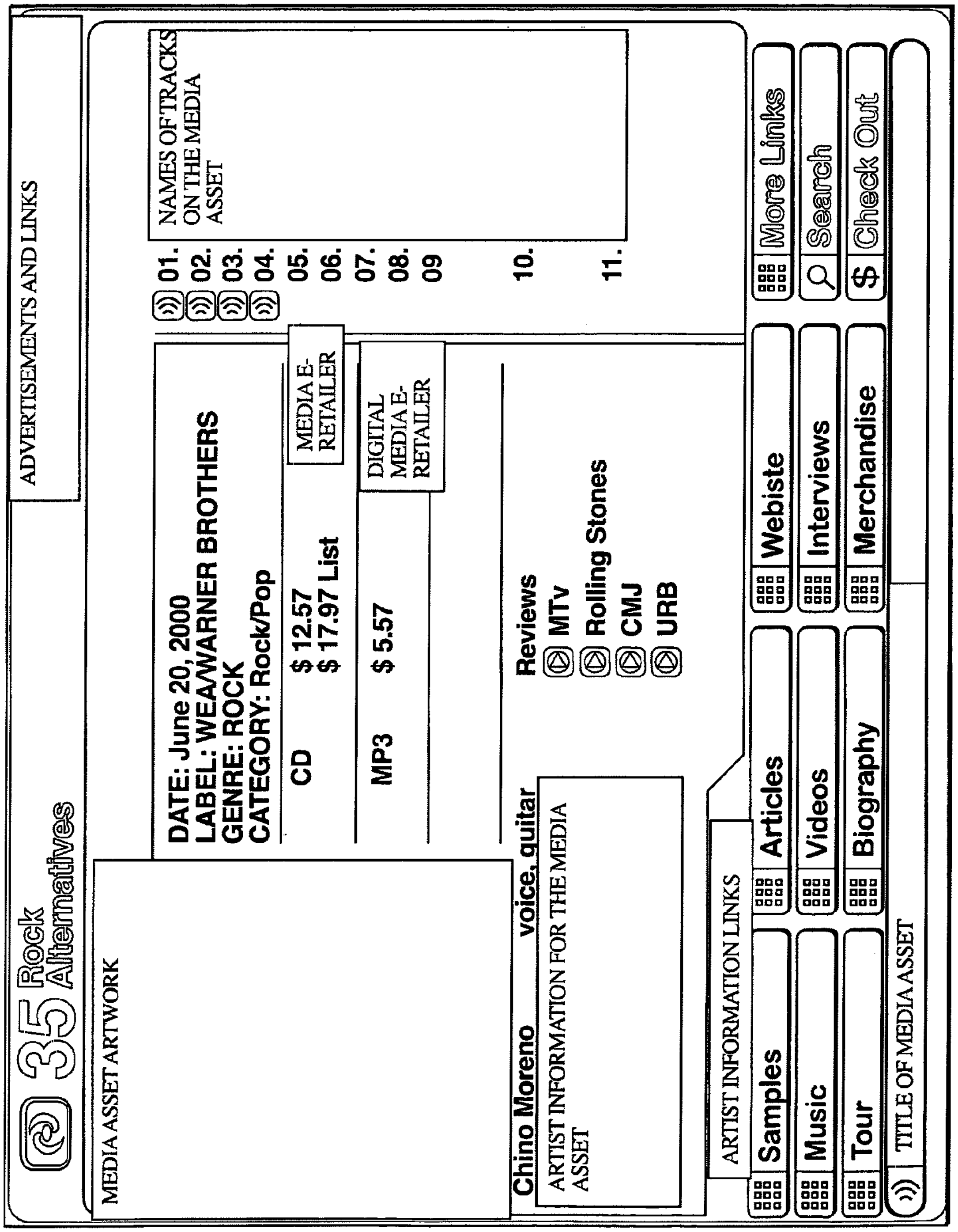

35 Rock Alternatives
ADVERTISEMENTS AND LINKS
MEDIA ASSET ARTWORK
DATE: June 20, 2000
LABEL: WEA/WARNER BROTHERS
GENRE: ROCK
CATEGORY: Rock/Pop
CD
$ 12.57
$ 17.97 List
MEDIA E-RETAILER
MP3
$ 5.57
DIGITAL MEDIA E-RETAILER
01.
02.
03.
04.
05.
06.
07.
08.
09
10.
11.
NAMES OF TRACKS ON THE MEDIA ASSET
Chino Moreno
voice, guitar
ARTIST INFORMATION FOR THE MEDIA ASSET
Reviews
MTv
Rolling Stones
CMJ
URB
ARTIST INFORMATION LINKS
Samples
Articles
Webiste
More Links
Music
Videos
Interviews
Search
Tour
Biography
Merchandise
$ Check Out
TITLE OF MEDIA ASSET

FIG.10

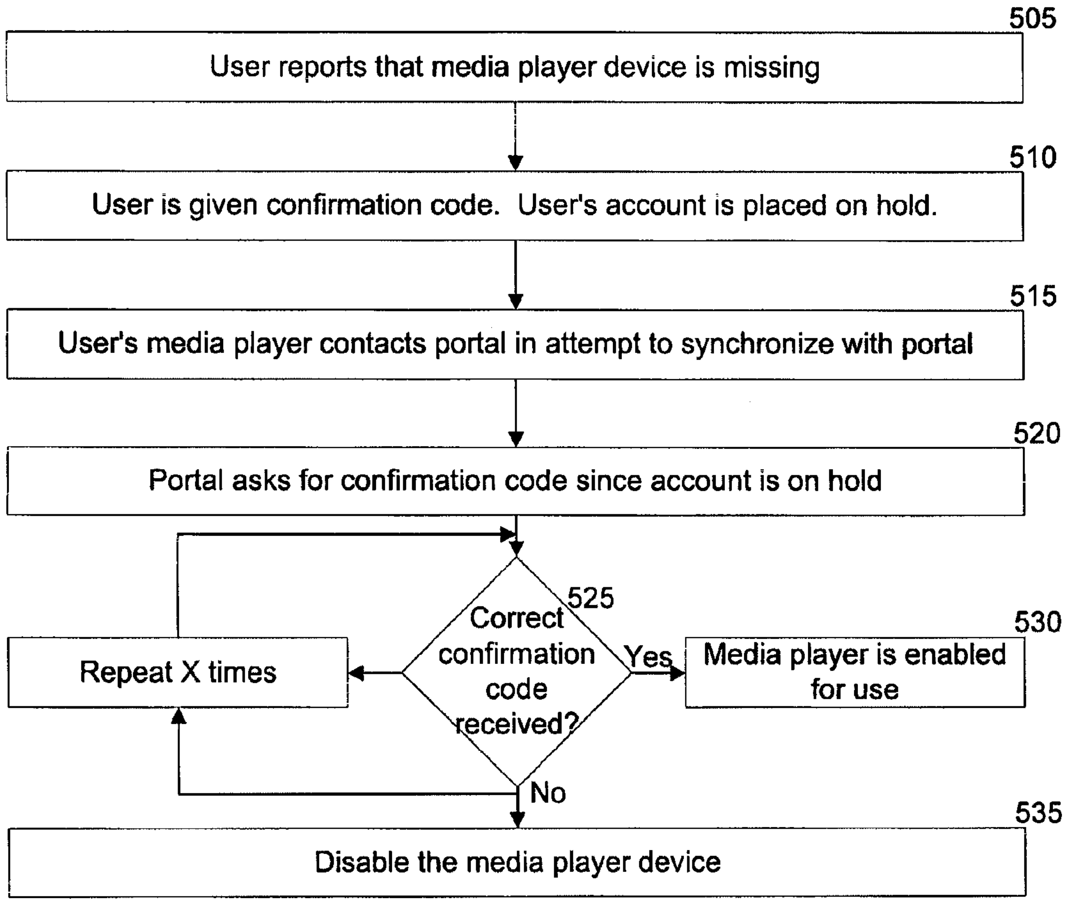

505
User reports that media player device is missing
510
User is given confirmation code. User's account is placed on hold.
515
User's media player contacts portal in attempt to synchronize with portal
520
Portal asks for confirmation code since account is on hold
525
Correct confirmation code received?
Yes
530
Media player is enabled for use
Repeat X times
No
535
Disable the media player device

Fig. 11

SYSTEM AND METHOD FOR DISTRIBUTING MEDIA ASSETS TO USER DEVICES VIA A PORTAL SYNCHRONIZED BY SAID USER DEVICES

This application claims priority to U.S. Provisional Patent Application Nos. 60/157,736 filed Oct. 5, 1999; 60/176,833 filed Jan. 19, 2000; 60/177,063 filed Jan. 19, 2000; 60/177,783 filed Jan. 24, 2000; 60/177,884 filed Jan. 24, 2000; 60/176,830 filed Jan. 19, 2000; 60/176,829 filed Jan. 19, 2000; and 60/177,867 filed Jan. 24, 2000. The entirety of each of these provisional applications is incorporated herein by reference.

BACKGROUND OF THE INVENTION

The distribution of music, video, software and other media assets has been dramatically transformed by the digital age and the Internet. For example, distribution of music is evolving from a physical copy sold by retail stores, catalog companies or on-line vendors, to digital copies transmitted over the Internet. In this connected and digital world, a system and method are needed whereby users can use media assets from multiple devices without the need to carry the asset on a memory device. It is desirable to provide a system and method that allows for the portability of media assets across different devices that are capable of connecting to a source of the media assets directly or indirectly over one or more communications networks.

SUMMARY OF THE INVENTION

Briefly, the present invention is directed to a system and method for distributing digital media assets to a plurality of users. A portal is provided comprising at least one server computer. The portal executes a media library database server application that manages access to a master library of media assets that can be accessed by users via one or more communication networks. Each of a plurality of media player devices communicates with the portal to access media assets for use. Each media player device assists in managing media assets licensed for use by a user.

The present invention is more fully described in the following description taken in conjunction with the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is an overall block diagram of the system according to the present invention.

FIG. **2** is a block diagram depicting the flow of media asset data according to the present invention.

FIG. **3** is a block diagram depicting the interaction of various software components in the system.

FIG. **4** is an example of a main screen or home page for the portal.

FIG. **5** is a view of a front panel of a media player device.

FIG. **6** is a view of a back panel of a media player device.

FIG. **7** is a block diagram of a media player device.

FIG. **8** is an example of a user interface screen for the media player software application.

FIG. **9** is a flow chart that illustrates a synchronization process of media assets between a media player device and the portal.

FIG. **10** is an example of a world wide web page showing how rights to a media asset may be purchased over the Internet according to the present invention.

FIG. **11** is a flow chart illustrating a security lock-out feature of a media player according to an aspect of the present invention.

DETAILED DESCRIPTION OF THE INVENTION

The Media Distribution System

Referring to FIGS. **1** and **2**, the present invention is directed to a system **10** for distributing digital media assets from a variety of media sources **100** to a variety of media player devices **200** through a portal **300**. Examples of media sources **100** are a webretailer **105**, a music or video production or distribution studio **110**, a video server **115** containing a library of video assets such as movies and other video productions from one or more production companies, an audio server **120** containing a library of audio assets such as music and other audio productions from one or more record companies and a web site **125** for an online and/or brick&mortar media asset company. In addition, artists not affiliated with a mainstream production company may make their video and/or audio assets available from a host server or their own servers. The portal **300** connects to the media asset sources **100** by any suitable means, such as the Internet, dedicated telecommunication lines, wireless networks, dedicated wide area networks, or any combination thereof. The terminology "electronically transmitting" a digital media asset is meant to include wired and/or fiber communication, wireless communication, and any long-distance or short range communications (IEEE 802.11, HomeRF, BlueTooth™) or combinations thereof. In addition to downloading or streaming media assets stored locally to the portal **300**, the portal **300** connects to media asset sources **100** and downloads and/or streams media assets from those sources to media player devices **200**.

A media player device **200** is a device that enables a user to play a digital media asset. The media player device **200** may be a home consumer device **210** that connects to a television or other monitor **215** as well as a home stereo **217** (amplifier/tuner, etc.) which in turn is connected to speakers **219**, a personal computer (PC) **220** (laptop or desktop), a vehicle-based electronic device **225**, a portable media player device **230**, or a wireless electronic device **235**. The media player is also referred to as a client media player insofar as it acts as a client to the portal **300** in some circumstances. An example of still another type of media player is a cable set-top box.

Briefly, a media player device **200** comprises a processor that executes a media playback software application program (or alternatively hardware) to enable a user to play or use a digital media asset, such as music, video, games, etc. In addition, the media player device **200** may have a display (LCD or other type), speakers, microphone, etc. The media playback software application program may be a platform generic software program that is useful on a diverse variety of media player devices. The media player device **200** of the home consumer device **210** variety may resemble a consumer electronics DVD player, that also connects to the Internet via broadband and/or modem. A broadband connection affords the ability of the media player device **200** to download audio and video media assets at desirable rates. The user interface with the home consumer device **210** is by way of a wired or (infrared or RF) wireless keyboard **212** and/or a handheld (infrared or RF) wireless remote **214**. The details of one example of a media player device **200** are described hereinafter in conjunction with FIGS. **5**–**7**.

A user may have multiple media player devices **200** and therefore desire access to media assets that he/she has purchased the rights to, on each media player, if that user has purchased rights of sufficient scope to permit access on multiple media players. Those assets to which a user has purchased digital access rights on one or more media players are hereinafter referred to as a user's licensed assets. Moreover, multiple users within a "family" may have different levels of access to certain classes of media assets on one or more media players **200** in that user family. Each user within the user family would have his/her own identifier and password. For example, an adult user might have access to certain "R" rated videos, while a child user might have access to only "G" rated videos. Some media assets may be licensed royalty free to a user such that there is no need to track how a user uses that particular media asset.

The portal **300** is computer server or group of servers that functions to allow for the storage, stream and download of media assets to a media player **200**. In addition, as described above the portal **300** provides connections to other source sites, such as sources of streaming Internet radio providers. The portal **300** allows for synchronization and replication of a user's licensed assets with each of the user's media player devices **200**. This functionality is hereinafter referred to as the virtual media asset library. The portal **300** also serves as a central repository within which media assets are "tagged" with identity and access privileges of those users (and users within a user family) that have licensed rights in the media assets. The portal **300** may be accessible directly from a media player device and through one or more web sites and may provide a customizable interface or view to each user, if desired. The virtual media asset library technology may include rights management, watermarking, encryption and containment functions performed by the portal **300**.

The digital media assets distributed by the system **10** may be audio such as music, video such as movies, television programs or other video productions, interactive software games, or any media that is digitized and suitable for electronic distribution. The digital media asset may be protected, where applicable or necessary, from piracy by the use of various methods, including digital rights asset management (DRM), encryption and watermarking. The digital media assets may be in any known or hereinafter developed formats, such as, for example, MP3, EPAC, WAV, REAL, MPEG, QuickTime and other formats.

The Portal

The portal **300** communicates with media player devices **200** via communication network **400** that may consist of the Internet and/or a combination of wireless communication networks, such as cellular networks, PCS networks, etc. While a single portal **300** is shown in FIG. **1**, it should be understood that there may be multiple portals, each dedicated to serve subsets of media player devices in a distributed fashion so as to minimize load on individual servers.

With reference to FIG. **3**, a basic architecture for the portal **300** is described. The components of the portal **300** are a hardware platform **310**, such as one or more computer servers, an operating system **320** that is executed by the hardware platform **310**, a master media library database (server) application **330** and a broadband interface **340**. An example of a web site home page through which a user interacts with the portal **300** is shown in FIG. **4**. In this exemplary screen, there are several areas for advertisements, one or more of which are "hot" and thus provide a link to an advertiser site. In addition, there are channels on the bottom portion of the screen associated with various media sources.

In accordance with one aspect of the invention, the master media library database application **330** synchronizes the licensed digital media assets for a user with the client database application in each media player of the user so that a user can access any licensed media asset from any of the user's media players for which that user has licensed rights. Alternatively, for media players that do not have a database client application, the master database application **330** maintains the user's database of assets "on-line" and a user obtains access to it by connecting to the portal **300**. This process is explained further hereinafter.

There are numerous other functions performed by the portal **300** and these are described below.

Update User and Billing Information

To begin with, the portal manages user information, such as name, address and phone information, billing and price plans and billing views desired by a user. There may be a monthly subscription charge and additional charges for the media assets a user desires to use.

Subscription Management Preferences

This portal allows the user to create their own custom portal view which previews and presents content that might fit the user's infotainment profile. Examples of these preferences are types of movies, producer, director, cinemaphotographer, choreographer, actor/actress, music type, musician or artist, etc.

Content Management

Some or all of the user's licensed assets are catalogued and stored by the master media library database in the portal **300**. (It should be understood that the media player device itself has storage capability to locally store assets.) There are numerous features associated with this aspect of the system.

The portal **300** may be used to add, edit, or delete a user in an account. It may be used to create, edit, or delete a playlist of assets, as well as add or delete particular audio or video assets. The portal may be used to edit the metadata associated with an asset (e.g., edit the title, artist genre classification of a song or the title, actor's name or director of a movie).

Asset Acquisition

There are a variety of functions and capabilities provided by the system associated with the process of acquiring assets, such as those listed below.

i. Stream Asset
ii. Download Asset
iii. Find/Search Master Database
iv. Get Usage History
v. Set Access Privileges—time, date, type, rating, number, etc.
vi. Check account status—active, limited, etc.
vii. Log activity—detailed request database
viii. Log Errors per user
ix. Log Errors per title

Royalty Management

Artists and media asset sources/distributors can interface to the portal to review usage activity of their respective media assets, including information such as, total downloads, downloads by type, downloads by region, and downloads by country. Royalties are calculated automatically and the billing system is queued for automatic payment, with specific approval being an option.

Interactive Services

1. Email
   i. Send & Receive Email
   ii. Third-Party hosting
   iii. Standard POP3 Compliant

2. Chat
   i. Provide Chat rooms for various topic discussions
   ii. Provide Chat Café with background music
   iii. Allow for password protection
3. Web Browsing
   i. Hot-link to other sites from portal
   ii. Track URL paths for insertion into database—(i.e.—link a song)
   iii. Browser may be tailored for TV and control by wireless keyboard and/or mouse
4. News Groups
   i. Allow for the creation of vertical news groups
   ii. Allow for interactive input
5. Games
   i. Provide for on-line gaming
   ii. Third-party pass-through

Data Warehouse Interface/Reporting

The portal may interface to third party databases for access to media assets. In this case, the portal replicates aspects of the remote databases. These media assets are locally cached by the portal for most commonly requested assets. In addition, the portal generates essential usage reports.

Advertisement Server

The portal includes advertisement server software functionality to allow for third-party advertisement submission, deletion and maintenance. The portal automatically inserts an ad into download stream, and selects an advertisement based on user profile information when allowable. Advertisement usage and user profile information is continuously tracked. The portal generates detailed usage reports for the operator of the system as well as for the advertiser. The advertisements may include URL "hotlinks" within an advertisement window, as is well known in the art. In addition, the portal allows for personalized/customized advertisement generation.

Personalization Engine

The portal further includes personalization software that provides personalized views for users. This further allows for insertion of targeted advertising based on profiles. An example of a type of profile that is created and tracked is a user's "psychographic" profile. Suggestions are generated for users based on viewing and listening profile information.

Activity Analysis

The portal monitors activity and usage of the system to suggest patterns for load management.

The Media Player Device

Referring again to FIG. 3, one form of the media player device **200** comprises a hardware platform **250**, an operating system **260**, a database client application **270** and a media player engine software application **280**. The media player engine **280** is, for example, based on a software platform that is useful across multiple and diverse types of hardware platforms of media player device, such as Java®, or is written as a platform specific application. The media player engine **280** may include interfaces to third party software for certain functions and features. The media library database server application **330** and the database client application **270** are, for example, database software products licensed by Oracle Corp. Briefly, the media player engine **280** comprises software, such as Java® and C++ code for playing back audio and video assets on an operating system platform **260**. The operating system **260** may be Windows®, Macintosh®, Linux™ or other operating platforms, which may include Internet browser capability or interfaces to a resident Internet browser application. Some or all of the media player engine **280** may be based on a platform portability software, such as Java®.

Another form of a media player device is also shown in FIG. **3**, wherein the media player device does not include a client database application **270**. Instead, the master media library database **330** of the portal maintains an "on-line" database of assets to which the user of that media player device is entitled to use. The user is informed of those assets in this on-line database when the media player device connects to the portal. The functionality of the media player device without the client database application **270** is otherwise similar to a device with it, except that the device without it must connect to the portal to inform the user of his/her database contents. The media player device of this type may have some local memory in which a playlist of media assets can be stored. The locally stored playlist would contain a subset of the user's complete on-line database.

Referring now to FIGS. **5**–**7**, an example of a hardware platform **250** for a media player device **200** of the home consumer variety **210** will be described in further detail. Many of the hardware components shown in FIGS. **5**–**7** would also be present in other types of media player devices (such as those shown in FIG. **1**) depending on cost and feature requirements. In some cases, additional components such as an amplifier, speaker and display would be included as part of the media player hardware platform. Generally, the media player device **210** is a stand-alone multimedia server. It is intended to be roughly the size of a CD/DVD Player and provide for both audio and video output, though its size may vary with specific applications. The audio output may require an amplifier to drive speakers, or an amplifier may be included within the device. Video is directed to a television or monitor. The media player device receives its media assets via broadband demand download or stream, traditional phone line download or stream from the portal and/or other media partners. The media player device is also able to download content and information from other Internet web sites through its embedded browser interface. Moreover, the media player device can playback locally stored media assets such as CDs, DVDs, or other physical media as well as media assets stored on a local hard drive storage device.

The particular hardware platform **250** for a media player device **200** shown in FIGS. **5**–**7** is intended to complement the existing stereo and audio-visual components within the home environment. The video interface of the media player device may support NTSC and PAL analog video signal standards, as well as HDTV or other digital TV standards. In addition, the media player device can support various audio signal formats, such as Dolby® and DTS theater sound formats.

The hardware platform **250** comprises several major components and assemblies.

A Front Panel Assembly **2210** comprises a display circuit assembly **2260** that drives a display **2262** and generates control signals from user input buttons **2264** and from an infrared receiver **2264**; a front I/O circuit assembly **2220** and a power switch circuit assembly **2230**. The display is, for example, a vacuum fluorescent display.

A Power Supply Assembly **2300** connects to a standard household power outlet and generates all of the necessary voltages and grounds for the components of the media player device.

A removable memory media drive device, such as DVD-ROM drive assembly **2400**, or other suitable removable memory media drive device heretofore known or hereinafter developed is provided. The "DVD" format is an example of a suitable drive assembly. Others removable memory media drive devices are CD-read, CD-read/write, DVD audio, DVD read/write, etc.

In addition, a hard disk drive **2500** is provided for storing media content and other information.

As shown in FIG. **5**, the front panel comprises the display **2262**, user interface buttons **2264**, a power on/off switch **2268**, and the tray or slot for the removable memory media drive **2400**. In addition, a swing-open door reveals (not shown) USB type 'A' stacked ports, IEEE-1394 port, PC-Card ports, Smart Card port, and ¼" headphone audio jack with headphone volume adjustment knob.

The rear panel is show in FIG. **6**. The rear panel exposes the I/O connections **2110**, including, USB, LAN, PHONE LINE IN, SERIAL, VGA OUT, Composite Video IN, S-Video IN, Audio OUT Left, Audio OUT Right, Composite Video OUT, S-Video OUT, Digital Audio, AC ~120V.

As shown in FIG. **7**, a motherboard assembly **2100** comprises the CPU **2120**, memory **2130**, special purpose chip sets **2140**, and I/O connectors **2110**. All processing excluding a processor on the display circuit assembly **2260** is controlled by the motherboard. Examples of the special purpose chip sets **2140** are Integrated Video Chipset with NTSC/PAL, S-Video, and SVGA out, Macrovision CSS for NTSC/PAL and S-Video Out, Integrated Stereo Audio Chipset with Stereo Line out, Integrated DVD/MPEG Video decoder hardware, Integrated DVD/MPEG Audio decoder hardware, 10Base-T Ethernet, 56 Kb V.90 modem, USB hardware to support 2 Type 'A' ports on rear, USB hardware to support 2 Type 'A' ports on front, IEEE-1394 hardware to support one front port, hardware to support 1 internal serial port (header), hardware to support 2 IDE drive ports (2 headers, 4 devices total).

The display circuit assembly **2260** includes firmware to perform functions such as, de-bouncing momentary switches, reporting user-input switch contact and release to motherboard via COM port, reporting removable memory media device 'EJECT' switch signal to motherboard via COM port, routing remote control and/or wireless keyboard commands to the motherboard, and managing the display.

The front panel circuit assembly **2220** manages interactions with the headphone jack, headphone volume attenuator control, dual type 'A' USB ports, and an IEEE-1394 connector. The remote control **214** (FIG. **1**) has several buttons and examples of some of their associated functions are listed in the table below.

Remote Control	Function
↑	Up a list
↓	Down a list
←	Move around widgets
→	Move around widgets
▶	Play
■	Stop
‖	Pause
◀❙	Previous Track
❙▶	Next Track
–	Volume Down
+	Volume Up
MUTE	Mute
EXIT	EXIT
GUIDE	GoTo
SELECT	Enter key
MENU	Menu
INFO	Option List
^	Page Up
v	Page Down

The media player software engine provides the media playback functionality for the media player device. An example of the user interface provided by the media player software engine is shown in FIG. **8**. There are icons associated with audio, video and web resources as well as one or more areas dedicated to advertisements and links. In addition, at the bottom of FIG. **8** are shown icons associated with the basic playback functions of a media asset, such as audio or video. There are several modes of operation that are controlled by the media player software engine described below. It should be understood that the media player software engine allows multiple modes to be performed at the same time. For example, a user, while using a media asset, may perform other functions such as web browsing or organizing a media asset library, etc.

Local Playback Mode

In this mode, the media player engine plays assets that reside on locally internal hard drives, CD, DVD, floppy or other removable media. Music is played back in this configuration as a background task. Other applications can function in the foreground.

Network Playback Mode

In this mode, the media player device is connected to a networked server or a mounted hard drive on a computer, which is on its local network. A media player device is capable of playing media assets in this mode from any connected server. Other media player devices can access server data. Server data is only "referenced" by the media player software engine and not "managed," i.e., data can be removed by any network member with appropriate privileges.

Internet Streaming Mode

In this mode, the media player device interacts with an Internet-based source for music or video, such as the portal or other sites capable of streaming audio or video data.

The media player device is capable of adding URL reference to its playlist. Streaming data formats include MP3, EPAC, Windows Media Audio and Video, Flash, QuickTime and REAL audio and REAL video.

Streaming Channels

The media player presents the user with a mix of preset streaming channels. The user can edit this list of channels and add or delete files to the list. These streaming channels can be either digital radio channels or streaming video channels.

Navigate Streams

This feature provides the ability to rewind and restart streaming media. The media player provides the functionality by caching the datastream in memory or on disk for later playback.

Audio Playback

This feature provides core functionality to the media player. Several formats are supported along with the standard VCR type of controls.

Typical formats are:

MP3 Audio—Various bit rates

LUCENT EPAC—Various bit rates

WAV

Macintosh Audio Format

REAL

Windows Media Player.

Video Playback

Digital video can be played back in a small window or full screen. The playback window is resizable for user preference. Examples of digital video formats are, MPEG 1, 2 & 4, and QuickTime formats on Windows and Macintosh.

Integrated Internet Browser

From within the media player a user can access various Internet sites and download music and video assets. Alternately, a user can access secure items from the portal that integrate into the user's virtual media asset library.

CD Playback and Record

Standard CDs can be played and recorded on the media player device.

Features include:

- Listen while record.
- Security restrictions for upload to portal.
- Record to MP3 or other proprietary or non-proprietary format.
- CD's title is automatically identified from an identification database that is either local to the portal or is remotely accessed by the portal via the Internet.
- Maintain local CD recognition database of personal CD names, titles, tracks and other information.
- Lyrics can be automatically added as MetaData from various servers (local or remote) that provide lyric information.
- Store CD information in local database.
- Maintain CD library catalog in database.
- JPEG, BMP & PICT album covers can be associated.
- Full CD control functionality.

Similar functions can be provided for DVD and Video CD playback.

CD Recognition

This feature involves automatically accessing a local table or an Internet service that associates title and track information to CDs. The media player device automatically identifies a disc in the device. CD information is incorporated into client database in media player device and displayed during playback of the media asset.

MetaData Database

Any music or video file in the media player can have an extensive database of MetaData referenced to it. This data can be referenced in many views and may include images, lyrics, notes, rights restrictions, and URLs. All data is searchable and reportable and is incorporated into client database of media player device.

Playback Construction

A user may create a playlist manually from a master database or generate playlists randomly based on database searches. Advanced hierarchical views provided for extreme flexibility.

Features include:

- View as text list, small icon or large icon views.
- Drag & drop building.
- Compute total playing time for making CDs timed list for events.
- Loop playlist.
- Play with scan mode to listen to "x" seconds of a song or video.

Data is incorporated into client database of media player device.

The Virtual Media Asset Library

The client database application of the media player can replicate its database list to the portal for virtual asset sharing.

The client database application is, for example, 8iLite Oracle or SQL database software. The client database application allows the media player user to access files stored at the portal in his/her virtual media asset library. Additionally, merchants can elect to sell digital media asset along with the sale of, for example, a hardcopy CD or Video. This feature can provide an additional revenue stream to the record companies as well as to the CD retailers. The client database in the media player and the master media library database communicate and interact to provide automatic replication and synchronization.

The media player device contacts the portal periodically (such as daily, multiple times during the day, etc.) or on demand to synchronize its database application with that of the portal. A network protocol, such as for example XML-RPC is used to synchronize the databases.

More specifically, each account on the portal has one or more media player devices associated with it, and one or more users associated with a given account. Users on any media player device may have access to assets on any other media player device associated with that account or of unrelated users so long as licensing rights are tracked and managed. This system of mutual interdependency is one feature of the virtual media asset library. At the portal, a user's portion of the master media library database is referred to as his/her virtual account.

When an asset or its metadata is added, modified or deleted from a media player device, this change is replicated to the portal in the synchronization process.

The client media player device initiates synchronization with the portal. With reference to FIG. **9**, first in step **3000**, the client media player device initiates synchronization with the portal. Next, in step **3010** the portal forwards any asset deletions from the corresponding virtual account in the master library database to the client media player device. In step **3020**, the client media player device sends any asset deletions from the local database to the portal. In step **3030**, the client media player device negotiates identifiers for new media assets with the portal. In step **3040**, the client media player device sends all updates of the local database (additions and changes) to the portal. In step **3050**, the portal sends all updates of the corresponding virtual account in the master library database (additions and changes) to the client media player device.

Operation of the System

An example of how the system operates to distribute digital media assets from a media source **100** to a media player **200** is now described with reference to FIGS. **1–3**. Initially, a user becomes a member or subscriber to a portal **300**, at which time his or her identity is initialized, and he/she is issued a user-specific password. Once a membership exists, a virtual private media asset database is created and associated with the user's login account and password in the portal. The user's virtual media asset library represents an intersection of the media assets in the master media library database **330** and those assets that the user has licensed rights to. The synchronization process is described above. The master media library database **330** need not locally store all of the media assets; in some cases the master media library database **330** will maintain a reference to the media asset that is stored by a media source **100** and accessed by the portal **300** as needed to satisfy the needs of users.

The portal **300** may distribute digital media assets, that is download them in their entirety, to a client media player device for use on that device subject to the licensing rights associated therewith. Alternatively, the portal **300** may stream the digital media assets to a client media player. A user's rights with respect to the digital media is either limited term, non-exclusive licensing rights (similar, for example, to a two-day movie rental in the bricks and mortar world) or indefinite term, non-exclusive licensing rights (similar, for example, to a CD purchase in the bricks and mortar world). The portal applies a series of rights management rules associated with each user's tagged digital media assets to limit the user's access to and use to those periods to which the user's licensed rights of those assets applies. Depending upon the specific licensing arrangement between a digital media asset owner and the user, the rights management rules can provide for a limited number of plays or uses of a particular asset, a limited number of days during which the asset can be used, or a limited number of other individuals with which the user may share the asset.

The system according to the present invention permits users to download their licensed digital media assets to secure client media player devices and to use their licensed digital media assets on those devices. As with the physical use of a CD in the bricks and mortar world, a user will have access to use his or her licensed assets on other infotainment devices that he or she owns or uses, provided those other client media player devices are registered within the portal as being authorized to use the user's licensed assets.

It has been recognized that the media industry has mandated that distribution of artists' intellectual property must be protected from piracy in order for the industry to adopt Internet-based distribution methods. The system and method of the present invention optionally allow for security against asset piracy by one or more methods: watermarking, encryption, and object encapsulation. Moreover, as discussed above, the system includes rights management information to allow for use based on pre-negotiated rules.

A digital media asset may be encrypted for general protection when the asset is first entered as an object within the main library database server. Upon the request for download (or streaming access) by a user, the asset may be watermarked to coincide with the serial number of the user's family of client media player devices. Each client media player device that the user owns becomes a licensed playback device for his or her registered multimedia assets if the scope of that license so permits. For example, if a user owns five client media player devices capable of running the playback engine, the user will have access to those assets from one client media player device to another in seamless fashion. This example illustrates a capability of the system of the present invention to move or copy an asset from any home, car, portable, computer, or other computing device. Each client media player device has a stored protection key that is capable of decrypting and executing the object that has been downloaded to the player. Each client media player device key is unique, but will have some level of identity with the other client media player devices used by the user's family of devices. From an auditing and security standpoint, each client media player device maintains a log of its playback or use activity for purposes of reconciliation with the media library database server application. From the point of download of the asset forward, the asset will be associated with and licensed to the user's family of client media player devices.

Furthermore, with the permission of a digital media asset owner or licensor, a user may be granted the right to loan or forward his or her licensed media assets to another person that is not a registered user of the system. The forwarded asset is encapsulated in an executable file that allows for the object's integration into the recipient's media players, provided the players are compatible with the media player technology of the system. If compatibility exists, the recipient will have the executable rights associated with this object. That is to say that if the rights of the object include an ability to play the asset only once, then the asset will play or be used once, and further actions will be disabled. In the event that compatibility does not exist or the recipient's device does not have a media player, the object will prompt for the optional download of a media player engine software application. In addition, the object will offer the possibility of membership to the system to allow for the recipient's use of this asset, as well as the recipient's possible downloading and use of other digital media assets.

If a user has previously purchased a physical media asset, the system allows for the introduction of that asset ownership into the database of the portal, in addition to the normal use of the asset in the media player device. An asset stored locally on a media player (on hard drive or other memory media such as CD or DVD) can be identified and uploaded to the portal for use on other authorized media player devices of that user. For example, a user may "rip" a CD or DVD into digital files that can be uploaded to the portal. As another example, the user presents his/her physical media asset (such as a CD) to a conversion operator (e.g., at a retail music store) who: (1) defaces the user's asset in a minimal fashion (which does not affect is usability) to ensure against improper conversion of the asset by another person; and (2) simultaneously registers the asset with the portal. This registration process establishes an ownership reference for the user with the media library database server and adds the converted asset to the user's virtual media asset library. Once this media asset has been added, the user or any user within the user's family will have access rights to the asset based on the rights conferred at the time of conversion. The rights associated with each such asset could possibly be different based on the original content creator's license.

With reference to FIG. **10**, according to a further aspect of the invention, a method or model is provided both to satisfy the music industry's piracy concerns and to provide an entirely new revenue source for the industry. This business model (distribution method) allows the consumer to purchase on-line virtual access rights with respect to each one of a consumer's purchased physical media assets. That is to say that a consumer who is a user of the system according to the invention can, for an appropriate fee, access each of his or her media assets anytime and anywhere the consumer has an Internet-enabled client media player device.

This method assumes for the music industry, for example, that consumers will continue to purchase physical media music assets, but will have the option of paying an additional licensing fee ($5.57, for example) for on-line virtual access rights to those music assets. FIG. **10** shows an example by which a user, through the portal, orders an audio CD from a media e-retailer, and is given the option to purchase digital access rights from a digital media e-retailer. The additional licensing fee per digital media asset is shared with the portal operator, participating e-retailers, and media asset (music) content owners. In exchange for the additional licensing fee, a "tag" would be associated with those digital media assets on the master media library database server with a notation that a particular user's media player devices are entitled to play or usage rights for those digital media assets.

It is further envisioned that each user may have up to some maximum number of eligible client media player devices (e.g., a desktop computer at home, a notebook personal computer at work, a DVD set top box, a vehicle-based device, and a handheld portable device), for which user will pay the system operator a monthly membership fee in order to have on-line virtual access services during any particular month. Consumers will find value in the automatic synchronization of the contents of their various media players, which allows them to gain access to all of their media assets from any player at any time. Finally, users may, subject to a licensing fee, convert their existing libraries of physical music assets (e.g., CDs and cassette tapes) to on-line virtually accessible assets.

Referring to FIG. **11**, a security lockout procedure **500** according to the invention will be described. To protect the usage of a digital media asset and a media player device, the security lockout procedure is provided to lockout unauthorized media player devices. Media player devices contact the portal for database synchronization, etc., when they are powered on, and periodically thereafter. If a media player device is stolen or missing, in step **505**, a user contacts the portal (electronically via email, via telephone, etc.) and reports that the media player device is stolen or missing. In step **510**, the portal puts the user's account on hold and issues the user a confirmation code. The user is then instructed to power cycle each of his/her media player devices.

In step **515**, the user's media players contact the portal in attempt to synchronize with the portal. Before synchronizing, in step **520**, the portal will cause the media player to ask the user for the confirmation code since the user's account has been put on hold. In step **525**, the portal determines whether the correct confirmation code has been received from the media player device. If it has, the media player device is enabled for use in step **530**. If the correct confirmation code is not received from a user of a media player device after a certain number of attempts, that media player device is disabled and no longer usable unless completely re-enabled.

The above description is intended by way of example only.

What is claimed is:

1. A system for managing the distribution of licensed media assets, the system comprising:

a portal comprising at least one server computer executing a media library database server application that manages access to a master library of licensed media assets by establishing a virtual private library for each of a plurality of users, each of said virtual private libraries comprising licensed media assets of said master library that are licensed by one of said plurality of users and that can be accessed by a plurality of media player devices via one or more communication networks;

a first media player device being operated by a first user and being operable to:

communicate with said portal to access licensed media assets in a virtual private library for said first user;

receive a new licensed media asset independent from the portal and that is not currently included in the master library or the virtual private library for said first user; and

transfer the reference of the new licensed media asset to the portal for inclusion in the virtual private library for said first user; and

a second media player device being operated by said first user and being operable to:

communicate with said portal to access licensed media assets in said virtual private library for said first user, including said new licensed media asset, of which the license includes multiple device access to the media assets.

2. The system of claim **1**, wherein said media library database server application of the portal manages usage rights of users to licensed media assets.

3. A media asset management portal for enabling a user to access media assets via a plurality of media player devices, the media asset management portal comprising:

a virtual media asset library associated with at least one user account which contains at least one media asset that a user associated with the user account is licensed to use on at least two media player devices, the virtual media asset library enabling each of the at least two media player devices corresponding to the user account to access the least one media asset; and

a network interface for controlling communication between the at least two media players and the virtual media asset library via a communications network;

a master media library database application that synchronizes the at least one media asset contained in the virtual media asset library with at least one of the media player devices by receiving the at least one media asset from one of the at least two media player devices and synchronizing the at least one media asset with the virtual media asset library.

4. The media asset management portal of claim **3**, wherein the master media library database application synchronizes the at least one media asset received from one of the at least two media player devices with another of the at least two media player devices.

5. A portal for enabling a user to manage media assets across a plurality of associated media player devices via a communications network, the portal comprising:

a virtual media asset library for storing a plurality of licensed media assets associated with a user account, the user account specifying a plurality of media player devices associated with the user account; and

an application associated with the virtual media asset library which enables each of the plurality of media player devices associated with the user account to access at least one of the plurality of licensed media assets via a communications network, to synchronize the plurality of licensed media assets between the virtual media asset library and a local database residing on at least one of the media player devices and is configured to receive a new media asset from one of the plurality of media player devices and add the new media asset to the virtual media asset library.

6. A portal for enabling user to manage media assets across a plurality of associated media player devices via a communications network, the portal comprising:

a virtual media asset library for storing a plurality of licensed media assets associated with a user account, the user account specifying a plurality of media player devices associated with the user account; and

application associated with the virtual media asset library which enables each of the plurality of media player devices associated with the user account to access at least one of the plurality of licensed media assets via a communications network, to synchronize the plurality of licensed media assets between the virtual media asset library and a local database residing on at least one of the media player devices and the application is configured to:

receive a new media asset from one of the plurality of media player devices;

add the new media asset to the virtual media asset library; and enable another of the plurality of media player devices to access the new media asset.

7. A media asset management system comprising:

a portal comprising:

a user account corresponding to at least one user; and

a virtual media asset library for storing a reference to a plurality of media assets which the user has a license to use; and

a plurality of media player devices associated with the user account, the plurality of media player devices including a media asset portability application that enables the user to access the plurality of media assets referenced in the virtual media asset library across the plurality of media player devices.

8. The media asset management system of claim 7, wherein the media asset portability application is configured

to post a new media asset added to the corresponding media player device to the virtual media asset library for access by the other of the plurality of media player devices.

9. The media asset management system of claim 7, wherein the media asset portability application is configured to move one of the plurality of media assets from the corresponding media player device to another of the plurality of media player devices.

10. The media asset management system of claim 7, wherein the media asset portability application is configured to provide at least one of the plurality of media assets from one of the media player devices to another of the plurality of media player devices.

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